Organic Waste Collection and Composting

Maine State Planning Office

Waste Management & Recycling Program

Composting of the separable organic portion of municipal solid wastes was identified as a top priority in the 1998 State Waste Management & Recycling Plan. The recycling plan supports and encourages composting of separated organic waste rather than mixed solid waste because separated organic waste requires less processing and results in a final product of higher quality and superior market value. Title 38, Section 2132.1 states ***"It is the policy of the State (of Maine) to recycle or compost, by January 1, 2003, 50% of the municipal solid waste generated each year."*** Municipal solid waste (MSW) in Maine consists of approximately 26% organic waste by weight (not including paper, newspaper, and cardboard) and includes food scraps, yard trimmings, brush and pet waste. Of these items, food scraps are the second largest single component of the MSW stream in Maine at approximately 15% by weight. Although much of the 50% of MSW that the State of Maine would like to see recycled by 2003 will consist of dry recyclables such as plastic, paper, cardboard and steel cans, composting of organic waste from residential and commercial sources is critical to Maine's 50% goal.

To date, composting of organic waste in Maine has been limited to yard waste, municipal wastewater treatment plant sludge, and on-farm composting of food processing residuals (fish waste, blueberry processing waste, cull potatoes, and others). While a large number of facilities are composting food residuals across the state, the actual percentage of food residuals that are composted is estimated to be less than 10%.

Organic Materials Targeted for Separation

Table 1 is a list of organic materials that have been included in residential and commercial organic waste separation studies across North America. In developing any program for collection and composting of organic waste, inclusion of any material which has attached metal or plastic will result in higher contaminant levels and will increase the level of post-processing that is necessary to generate a high-quality product. Communities throughout North America that have composted mixed solid waste have typically not been able to produce a high quality end product, and, as a result, have had difficulty distributing the final product.

TABLE 1
COMPOSTABLE ORGANIC MATTER

Yard waste	Dryer lint
Food waste with meat scraps and bones	Wood ash
Soiled paper items	Animal and human hair
Non-recyclable waxed corrugated cardboard	Paper vacuum cleaner bags
Pet waste	Sawdust and wood shavings
Disposable diapers	

The first study in Maine on the collection and composting of separated residential and commercial organic waste was conducted in Lewiston in 1995 and 1996. Residential collection of food scraps has not been conducted in Maine since the 1940's and 1950's when it was collected in selected cities for pig feed. The following are considerations which should be taken into account in the planning and development of an organic waste separation and composting program.

Considerations for Full-Scale Collection and Composting of Separated Organic Waste

Education

- Initial informational mailings to all participants are mandatory.
- Assigning individuals to distinct neighborhoods to encourage separation of organic waste may result in an increase in participation and volumes diverted.

Commercial Collection

- Businesses or institutions with a commitment to recycling will separate the greatest quantity of clean organic waste with minimal training.
- Multiple training sessions are recommended for larger businesses with numerous employees responsible for waste management.
- Polyethylene wheeled carts or leak-proof dumpsters are recommended for outside storage of organic waste.
- Smaller polyethylene cans with or without liners are recommended for inside storage of organic waste.
- Leak-proof rear-loading packer truck is recommended for collection from commercial accounts.
- Collection more than once per week, particularly in summer months, may be required to secure participation from hospitals and nursing homes.

Residential Collection

- Sufficient housing density is important to cost effective collection.
- Residential routes with high recycling rates are likely to have the best participation rates
- Leak-proof side-loading packer truck for collection is recommended
- Once a week collection frequency may be adequate for most communities

Containers and Degradable Bags

- Degradable plastic bags need to be thicker than traditional trash bags to provide adequate wet strength.
- Kraft paper bags should be considered for yard waste because of their excellent degradability.
- Cost for premium quality bags, like degradable polymer or cellulose-lined Kraft bags, may need to be subsidized by the community to boost participation.
- 5-gallon bucket with lid or recycling box with lid works well for storage of organic kitchen waste.

Composting

- The facility operator should be knowledgeable in the areas of composting and material handling.
- A slow-speed shear shredder is recommended for grinding.
- Screening of compost prior to final distribution is recommended to achieve maximum revenue and consistent market for product.
- Composting with regular agitation and addition of water is recommended
- A regional composting facility to treat numerous wastes including residential and commercial organic waste and biosolids from several communities is likely to be the most economical for rural communities in Maine.
- Waste wood or yard waste is recommended for amendment, if needed.

Economics

- Make every effort to maintain or decrease solid waste disposal cost for residents or businesses that separate.

Costs for Full-Scale Collection and Composting of Separated Organic Waste

The major costs involved in the development, implementation, and operation of a full-scale program for collection and composting of residential and commercial organic waste include planning and education, containers and bags, collection, and composting. The costs for many of these items will vary from community to community as will the current cost for disposal of MSW in landfills or incinerators. Items such as environmental awareness, extension of landfill life, community involvement, and beneficial end-products are often overlooked, but should be factored into the overall analysis.

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